

# Conversational Agents in Health Care: Scoping Review and Conceptual Analysis

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## Abstract

**Background** Conversational agents, also known as chatbots, are computer programs designed to simulate human text or verbal conversations. They are increasingly used in a range of fields, including health care. By enabling better accessibility, personalization, and efficiency, conversational agents have the potential to improve patient care. **Objective** This study aimed to review the current applications, gaps, and challenges in the literature on conversational agents in health care and provide recommendations for their future research, design, and application. **Methods** We performed a scoping review. A broad literature search was performed in MEDLINE (Medical Literature Analysis and Retrieval System Online; Ovid), EMBASE (Excerpta Medica database; Ovid), PubMed, Scopus, and Cochrane Central with the search terms “conversational agents,” “conversational AI,” “chatbots,” and associated synonyms. We also searched the gray literature using sources such as the OCLC (Online Computer Library Center) WorldCat database and ResearchGate in April 2019. Reference lists of relevant articles were checked for further articles. Screening and data extraction were performed in parallel by 2 reviewers. The included evidence was analyzed narratively by employing the principles of thematic analysis. **Results** The literature search yielded 47 study reports (45 articles and 2 ongoing clinical trials) that matched the inclusion criteria. The identified conversational agents were largely delivered via smartphone apps (n=23) and used free text only as the main input (n=19) and output (n=30) modality. Case studies describing chatbot development (n=18) were the most prevalent, and only 11 randomized controlled trials were identified. The 3 most commonly reported conversational agent applications in the literature were treatment and monitoring, health care service support, and patient education. **Conclusions** The literature on conversational agents in health care is largely descriptive and aimed at treatment and monitoring and health service support. It mostly reports on text-based, artificial intelligence–driven, and smartphone app–delivered conversational agents. There is an urgent need for a robust evaluation of diverse health care conversational agents’ formats, focusing on their acceptability, safety, and effectiveness.